

Alternative WS-12

Group

Water Supply

Title

Improved Through-Delta Conveyance with Screened Diversion at Hood

This alternative is developed around improving the existing through-Delta transport of water in combination with the installation of a fish screen at a relocated diversion point on the Sacramento River near Hood. This alternative is intended to achieve substantially greater protection of anadromous fish and some greater protection for resident fish from entrainment effects, improved aquatic habitat productivity in the Delta, and a more reliable and higher quality supply of water for export from the Delta.

The screening of the Sacramento diversions to the central Delta would provide substantial reductions in the mortality rate of downstream migrating salmon in the Sacramento River. The increased through-Delta flows increases lower San Joaquin River flows (eliminates reverse flows), which reduces entrainment effects on resident fish. Through-Delta channel improvements would include habitat restoration elements. Further habitat restoration in the Delta would improve rearing habitat for anadromous and resident fish. These improvements are needed because the intake points would remain at current locations in the Delta, and would be effective because improved through-Delta flows would decrease the vulnerability of Delta fish to entrainment effects. The water supply would be more reliable because it would be substantially less constrained by pumping restrictions to protect fish from entrainment in the Delta. Export water quality may be somewhat improved because of reduced mixing with high-salinity Bay water. Flood protection throughout the Delta would be improved to protect existing land uses and infrastructure and to protect Delta water quality.

Key Actions

Construct a screened diversion facility at Hood—Divert up to 12,000 cfs of Sacramento River water into the North and South Mokelumne rivers at Hood, increasing the flow and improving the water quality of the San Joaquin River below the Mokelumne River confluence. Improvements to existing through-Delta conveyance channels would improve the efficiency of water movement to the export facilities, reducing entrainment effects and improving water quality in the south Delta.

Delta Islands Habitat Restoration and Subsidence Control—Acquire Delta island properties from willing sellers, convert land use to diverse and permanently flooded wildlife habitat to minimize or reverse subsidence in the west Delta. Also acquire Delta island and tract properties from willing sellers within the 100 year flood plain for creation of tidal and seasonal wetlands, creation of diverse riparian and uplands habitats, and providing flood storage areas to compensate for increased flood flows due to watershed urbanization. Because export intakes would remain at existing locations in the south Delta, these habitat restoration measures would be implemented at high levels.

Increase diversion capacity—Installing an additional gate on Clifton Court Forebay and obtain permits to pump at full export capacity when flows are high and entrainment risks are low, as determined by real-time monitoring.

Improve channel capacity of the north and south Delta—Implement dredging, levee setbacks, and gradient control facilities to improve channel capacity.

Levee Upgrades—Provide landside buffer zones of 50 to 75 yards to minimize levee subsidence for islands providing valuable existing habitat, such as on Bradford Island. Improve levee maintenance and stabilization to at least National Flood Insurance Program standards (NFIP; 100-year flood protection) for all islands, such as Tyler and Mandeville, containing existing infrastructure and/or land use that provides economic benefit to the region. Improve levee maintenance and stabilization to at least Bulletin 192-82 or PL-99 standards (generally considerably more than 100-year flood protection) for critical western Delta islands, such as Brannan-Andrus, Bethel, and Sherman, to reduce risk to critical infrastructure (e.g. Mokelumne Aqueduct, PG&E gas lines, Highway 160) and to reduce risk to export water quality from salinity intrusion due to levee failure. The upgrades to levees would be accompanied by restoration on and adjacent to these levees, providing a mix of shaded riverine aquatic, wetland, and terrestrial habitats. A levee management plan would provide necessary funding for ongoing maintenance and emergency funding and direction to reclaim Delta islands in the event of inundation in order to continue protection of Delta functions as an integrated resource system.

Supporting Actions

Real time monitoring—Implement intensive sampling of fish distribution and abundance to help operate diversion facilities to minimize fisheries impacts.

Close Delta Cross Channel—The Delta Cross Channel would be closed with locks installed to allow boat traffic but prevent the movement of fish into the central Delta.

Control introduced and nuisance species—Implement programs to reduce the likelihood of introducing exotic species and to combat the deleterious effects of those which have become established.

Preliminary Assessment

Ecosystem Quality—Habitat restoration actions would be implemented near the maximum level in this alternative because the export pumps would remain in the south Delta. Additional improvements to ecosystem quality would be achieved through reducing diversion and reverse flow impacts currently associated with Delta exports. Consequently, productivity improvements would be expected in the western Delta and lower San Joaquin River. Losses of anadromous and resident fish from the Sacramento River, Suisun Bay and the Delta to exports at the south Delta pumping plants would be reduced. This alternative would provide less protection from diversion impacts than an isolated transfer facility, so it would require more habitat restoration in the Delta. Continued losses of Delta resident, and San Joaquin and Delta anadromous fish would still occur at the export pumps.

Water Supply—Under this alternative, 1995 Water Quality Control Plan objectives would remain in place. However, the improved through-Delta conveyance may allow a relaxation of export/inflow rules, thus providing a more reliable and higher quality water supply.

Water Quality—Water quality will be enhanced to varying levels for areas receiving Delta export water, as well as in-Delta diverters because of the greater isolation of export water from sea water intrusion and more dilution of Delta agricultural drainage. This alternative provides more dilution of south Delta water by Sacramento River water, reducing the need for San Joaquin River pollutant controls.

System Reliability—The system reliability would be increased within the Delta due to the more stable levees in the Mokelumne River system. Western Delta habitat restoration and levee maintenance would also improve system reliability.

Possible Supplemental Actions

A fish barrier at Georgianna Slough could be installed to increase the protection of Sacramento River fish. Tidal barriers in the south Delta could be used to further improve south Delta water supply, if needed. Improve anadromous fish survival by providing passage through upstream obstructions and by opening alternative migration routes and reducing upstream diversions (including the Keswick Canal).